

### REMARKS

Claims 1 to 35, are pending in this application; of which, claims 1, 15, 16, 19, 30, 32 and 35 are the independent claims. Favorable reconsideration and further examination are respectfully requested.

Applicants acknowledge the Examiner's indication that claims 16 to 18 are allowable, claims 6 and 9 would be allowable if rewritten in independent form including the base claim and any intervening claims and claims 15 and 30 to 34 would be allowable if rewritten to overcome §112 rejections.

Initially, the Examiner objected to the drawings because the terms "cantilever", "calibration cantilever" and "flexible structure" in the respective claims 15, 30, 32, and 33 were not allegedly shown in the figures. Applicants respectfully disagree. Applicants have indicated a cantilever 14 in FIG. 1. Applicants further indicated in FIG. 3 a calibration cantilever 62 and that the calibration cantilever may be a flexible structure (see page 11, lines 14 to 18 of Applicants' Specification). Applicants respectfully request withdrawal of the drawings objection.

The Examiner objected to the specification because the word "accurately" was misspelled. Applicants have amended the specification to correct the spelling. Applicants request withdrawal of the specification objection.

Turning to the §112 rejections, claims 5 and 7 were rejected because the term “the piezoelectric actuator” allegedly lacked antecedent basis. Applicants have amended claim 5 and 7 to remove the term “piezoelectric”.

Claim 7 was rejected because it was allegedly unclear how values of deflection were measured over time. Applicants have amended claim 7 to more distinctly claim the invention.

Claims 15, 30, 32 and 33 were rejected because the Examiner alleges it was unclear whether the terms “calibration cantilever”, “flexible structure” and “cantilever” in the respective claims were the same or different terms. Applicants respectfully disagree. Applicants have indicated that cantilever 14 is used in characterization tasks (see FIG. 1 and page 6, lines 3 to 15 of the Applicants' Specification). Applicants have also indicated that the microscope in FIG. 1 “uses a calibration map to map actuator signal to actuator displacement” (see page 5, lines 11 to 13 of Applicants' Specification). Applicants have further indicated in FIG. 3 that a calibration cantilever 62 may be used “to produce the calibration map” (see page 5, lines 15 to 16 of Applicants' Specification). Furthermore, Applicants have indicated “that the calibration cantilever may not be the same as the cantilever used for sample characterization tasks (e.g., image scanning)” (see page 15, lines 3 to 6 of Applicants' Specification).

Applicants request withdrawal of the §112 rejections. Applicants submit that independent claims 15, 30 and 32 and their respective dependent claims are now allowable.

Turning to the art rejection, claims 1, 3 to 5, 7, 8, 10, 12, 14, 19, 21 to 23, 25, 29, 35 and 36 were rejected under 35 U.S.C. § 103(a) as being obvious over Flecha et al. (U.S. Patent 5,773,824).

Claim 1, as amended, is directed to a method of calibrating a scanning probe microscope. The method includes applying an input signal to an actuator of a scanning probe microscope to cause movement of the actuator. The method also includes measuring a value indicative of deflection of a flexible structure attached to the actuator, as a result of the actuator movement based on an acceleration sensitivity of the flexible structure. The method further includes determining from the deflection value a corresponding value of actuator displacement.

The applied art is not understood to disclose or to suggest the foregoing features of claim 1. In particular, Flecha does not disclose or suggest measuring a value indicative of deflection of a flexible structure attached to the actuator, as a result of the actuator movement based on an acceleration sensitivity of the flexible structure.

Flecha describes a scanning probe microscope that includes two actuators: a fast actuator having a small range of motion and a slow actuator having a large range of motion (see Abstract of Flecha). Flecha describes using the slow actuator to adjust the fast actuator when the faster actuator is outside a predetermined range (see Abstract of Flecha). Flecha discloses recording deflections based on both actuators; however, Flecha does not mention an acceleration sensitivity of the flexible structure much less determining a value indicative of the deflection based on the acceleration sensitivity. Therefore, Flecha does not disclose or suggest measuring a value indicative of deflection of a flexible structure attached to the actuator, as a result of the actuator

movement based on an acceleration sensitivity of the flexible structure. Accordingly, for at least the reasons indicated above, Applicants believe that claim 1 is allowable.

Claim 19, as amended, is directed to a scanning microscope that includes the limitation of "measuring a value indicative of deflection of a flexible structure attached to the actuator, as a result of the actuator movement based on an acceleration sensitivity of the flexible structure."

Claim 35, as amended, is directed to an article having corresponding features to claim 1.

Applicants submit that claims 19 and 35 are patentable for at least the same reasons as claim 1.

For at least the foregoing reasons, Applicants request withdrawal of the art rejection.

Applicants submit that all dependent claims now depend on allowable independent claims.

It is believed that all of the pending claims have been addressed. However, the absence of a reply to a specific rejection, issue or comment does not signify agreement with or concession of that rejection, issue or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Finally, nothing in this paper should be construed as intent to concede any issue with regard to any claim, except as specifically stated in this paper, and the amendment of any claim does not necessarily signify concession of unpatentability of the claim prior to its amendment.

Applicants submit that the entire application is now in condition for allowance. Such action is respectfully requested at the Examiner's earliest convenience.

Applicants: El Rifai et al.  
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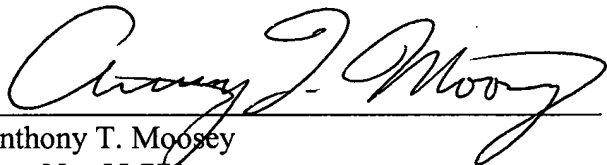
Attorney's Docket No.: MIT-135PUS

All correspondence should be directed to the address below. Applicants' attorney can be reached by telephone at (781) 401-9988 ext. 23.

No fee is believed to be due for this Response; however, if any fees are due, please apply such fees to Deposit Account No. 50-0845 referencing Attorney Docket: MIT-135PUS.

Respectfully submitted,

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Anthony T. Moosey  
Reg. No. 55,773

Daly, Crowley, Mofford & Durkee, LLP  
354A Turnpike Street - Suite 301A  
Canton, MA 02021-2714  
Telephone: (781) 401-9988 ext. 23  
Facsimile: (781) 401-9966